IN THE CLAIMS:

Please cancel claim 32, and amend the claims as follows:

1. (Currently amended) A method of processing a substrate, comprising:

introducing a substrate into an electrolyte;

forming a passivation layer on a substrate surface;

polishing the substrate in an electrolyte solution;

applying an anodic bias to the substrate surface; and

removing material from at least a portion of the substrate surface.

2. (Currently amended) The method of claim 1, wherein the passivation layer is a current suppressing layer formed by exposing a substrate surface to an electrolyte comprising one or more of a corrosion inhibitor, a leveling agent, or combinations thereof.

3. (Original) The method of claim 2, wherein the corrosion inhibitor comprises an organic compound containing an azole group selected from the group of benzotriazole, mercaptobenzotriazole, 5-methyl-1-benzotriazole, and combinations thereof.

4. (Original) The method of claim 2, wherein the leveling agent is selected from the group of polyethylene glycol, polyethylene glycol derivatives, and combinations thereof.

5. (Original) The method of claim 1, wherein the passivation layer is formed by disposing the substrate in an electrolyte containing a viscous forming agent.

6. (Original) The method of claim 5, wherein the viscous forming agent comprises a phosphate-based compound or a phosphorus acid based compound.

7. (Original) The method of claim 6, wherein the viscous forming agent comprises phosphoric acid, copper phosphate, or potassium phosphate.

8. (Original) The method of claim 1, wherein the passivation layer is formed by depositing a dielectric or organic material on the substrate surface.

9. (Original) The method of claim 1, wherein the passivation layer comprises silicon oxide.

10. (Original) The method of claim 1, wherein the electrolyte is selected from the group of sulfuric acid based electrolytes, phosphoric acid based electrolytes, sulfuric acid based electrolyte derivatives, phosphoric acid based electrolyte derivatives, and combinations thereof.

11. (Original) The method of claim 10, wherein the electrolyte further comprises abrasive particles.

12. (Original) The method of claim 1, wherein applying the bias to the substrate comprises applying a voltage between about 0.1 volts and about 15 volts.

13. (Original) The method of claim 1, wherein polishing article exerts a pressure on the substrate of about 2 psi or less during polishing.

14. (Original) The method of claim 2, wherein the corrosion inhibitor, leveling agent, or combinations thereof, comprise between about 0.005 vol% and about 10 vol% of the electrolyte.

15. (Currently amended) A method of processing a substrate, comprising:

positioning the substrate in an electrolyte solution adjacent a polishing article disposed in the electrolyte;

exposing the substrate to a corrosion inhibitor, a leveling agent, a viscous forming agent, or combinations thereof, to form a current suppressing layer on a substrate surface;

polishing the substrate in the electrolyte solution with the polishing article to remove at least a portion of the current suppressing layer;

applying a bias between an anode and a cathode disposed in the electrolyte solution; and

removing material from at least a portion of the substrate surface with anodic dissolution.

16. (Original) The method of claim 15, wherein applying the bias comprises controllably applying a time varying anodic potential to the substrate surface.

17. (Original) The method of claim 15, wherein the bias applied between the anode and the cathode is between about 0.1 volts and about 15 volts.

18. (Original) The method of claim 15, wherein the electrolyte is selected from the group of sulfuric acid based electrolytes, phosphoric acid based electrolytes, sulfuric acid based electrolyte derivatives, phosphoric acid based electrolyte derivatives, and combinations thereof.

19. (Original) The method of claim 15, wherein the corrosion inhibitor comprises an organic compound containing an azole group selected from the group of benzotriazole, mercaptobenzotriazole, 5-methyl-1-benzotriazole, and combinations thereof.

20. (Original) The method of claim 15, wherein the leveling agent is selected from the group of polyethylene glycol, polyethylene glycol derivatives, and combinations thereof.

21. (Original) The method of claim 15, wherein the viscous forming agent comprises a phosphate-based compound or a phosphorus acid based compound.

22. (Original) The method of claim 21, wherein the viscous forming agent comprises phosphoric acid, copper phosphate, or potassium phosphate.

23. (Original) The method of claim 15, wherein the corrosion inhibitor, leveling agent, viscous forming agent, or combinations thereof, comprise between about 0.005 vol% and about 10 vol% of the electrolyte.

24. (Original) The method of claim 15, wherein the electrolyte further comprises abrasive particles.

25. (Currently amended) An apparatus for processing substrates, comprising:

a partial enclosure defining a processing region and having a fluid inlet and a fluid outlet;

an cathode disposed in the partial enclosure;

a polishing article disposed in the partial enclosure;

a substrate carrier ~~movably~~ disposed above the polishing article, the substrate carrier having a substrate mounting surface;

a power source coupled through the partial enclosure to [a substrate or to] the polishing article disposed therein; and

a computer based controller configured to cause the apparatus to position a substrate in an electrolyte solution to form a passivation layer on a substrate surface, to polish the substrate in the electrolyte solution with the polishing article, and to apply an anodic bias to the [substrate surface or] polishing article to remove material from at least a portion of the substrate surface.

26. (Original) The apparatus of claim 25, wherein the cathode comprises a ring vertically disposed in the partial enclosure.

27. (Original) The apparatus of claim 25, wherein the cathode comprises a ring horizontally disposed in the partial enclosure.

28. (Original) The apparatus of claim 25, wherein the polishing article is a polishing pad, a linear web or belt of polishing material, or one or more rollers of polishing article.

29. (Original) The apparatus of claim 28, wherein the one or more rollers of polishing article are disposed in series to polish a horizontally or vertically disposed substrate.

30. (Original) The apparatus of claim 28, wherein the polishing article is conductive.

31. (Original) The apparatus of claim 30, wherein the conductive polishing article comprises conductive elements or materials embedded or formed in polyurethane, wherein the conductive elements are electrically connected to one another and contact a substrate surface when a substrate is in contact with the polishing article.

32. (Cancelled)

33. (Original) The apparatus of claim 25, wherein the computer based controller is configured to apply a time varying anodic potential to the substrate surface.

34. (Original) The apparatus of claim 25, wherein the computer based controller is configured to apply a voltage between about 0.1 volts and about 15 volts to the substrate surface or polishing article.

35. (Original) An electrochemical deposition system, comprising:
a mainframe having a mainframe wafer transfer robot;

a loading station disposed in connection with the mainframe;

one or more electrochemical processing cells disposed in connection with the mainframe;

one or more polishing platens disposed in connection with the mainframe;

an electrolyte supply fluidly connected to the one or more electrochemical processing cells; and

one or more polishing fluid supplies connected to the one or more polishing platens.

36. (Original) The system of claim 35, further comprising a system controller for controlling an electrochemical deposition process, an electrochemical removal process, a polishing process, or combinations thereof.

37. (Original) The system of claim 36, further comprising a spin-rinse-dry (SRD) station disposed between the loading station and the mainframe.

38. (Original) The system of claim 36, further comprising a thermal anneal chamber disposed in connection with the loading station.

39. (Currently amended) The system of claim 35, wherein the electrochemical processing cell comprises:

a partial enclosure defining a processing region and having a fluid inlet and a fluid outlet;

an cathode disposed in the partial enclosure;

a polishing article disposed in the partial enclosure;

a substrate carrier movably disposed above the polishing article, the substrate carrier having a substrate mounting surface;

a power source coupled through the partial enclosure to a substrate or to the polishing article disposed therein; and

a computer based controller configured to cause the apparatus to position a substrate in an electrolyte solution to form a passivation layer on a substrate surface, to polish the substrate in the electrolyte solution with the polishing article, and to apply an

anodic bias to the substrate surface or polishing article to remove material from at least a portion of the substrate surface.

40. (New) A method of processing a substrate, comprising:

positioning the substrate in an electrolyte solution adjacent a polishing article disposed in the electrolyte, the electrolyte solution selected from the group of sulfuric acid based electrolytes, phosphoric acid based electrolytes, sulfuric acid based electrolyte derivatives, phosphoric acid based electrolyte derivatives, and combinations thereof; the electrolyte solution further comprising one or more corrosion inhibitors selected from the group of benzotriazole, mercaptobenzotriazole, 5-methyl-1-benzotriazole and one or more chelating agents selected from the group of tetraethylenepentamine, triethylenetetramine, diethylenetriamine, ethlylenediamine, amino acids, ammonium oxalate, ammonia, ammonium citrate, citric acid, and ammonium succinate;

polishing the substrate in the electrolyte solution with the polishing article to remove at least a portion of the current suppressing layer;

applying a bias between an anode and a cathode disposed in the electrolyte solution; and

removing material from at least a portion of the substrate surface with anodic dissolution.

41. (New) The method of claim 40, wherein the electrolyte solution further comprises a viscous forming agent comprising a phosphate-based compound or a phosphorus acid based compound, to form a current suppressing layer on a substrate surface.

42. (New) The method of claim 41, wherein the viscous forming agent comprises phosphoric acid, copper phosphate, or potassium phosphate.

43. (New)The method of claim 42, further comprising a leveling agent selected from the group of polyethylene glycol, polyethylene glycol derivatives, and combinations thereof.

44. (New) The method of claim 43, wherein the corrosion inhibitor, leveling agent, viscous forming agent, or combinations thereof, comprise between about 0.005 vol% and about 10 vol% of the electrolyte.

45. (New) The method of claim 40, wherein the electrolyte further comprises abrasive particles.

46. (New) A method of processing a substrate, comprising:

introducing a substrate into an electrolyte;

forming a passivation layer on a substrate surface by exposing a substrate surface to an electrolyte comprising one or more corrosion inhibitors and one or more chelating agents;

polishing the substrate in the electrolyte solution;

applying an anodic bias to the substrate surface by biasing a polishing article and positioning the substrate in contact with the polishing article; and

removing material from at least a portion of the substrate surface.

47. (New) The method of claim 46, wherein the electrolyte is selected from the group of sulfuric acid based electrolytes, phosphoric acid based electrolytes, sulfuric acid based electrolyte derivatives, phosphoric acid based electrolyte derivatives, and combinations thereof.

48. (New) The method of claim 47, wherein the one or more corrosion inhibitors comprises an organic compound containing an azole group selected from the group of benzotriazole, mercaptobenzotriazole, 5-methyl-1-benzotriazole, and combinations thereof.

49. (New) The method of claim 48 wherein the one or more chelating agents are selected from the group of tetraethylenepentamine, triethylenetetramine, diethylenetriamine, ethlylenediamine, amino acids, ammonium oxalate, ammonia, ammonium citrate, citric acid, and ammonium succinate.

50. (New) The method of claim 49, wherein the electrolyte further comprises a leveling agent selected from the group of polyethylene glycol, polyethylene glycol derivatives, and combinations.

51. (New) The method of claim 49, wherein the electrolyte further comprises abrasive particles.

52. (New) The apparatus of claim 39, wherein the polishing article is a polishing pad, a linear web or belt of polishing material, or one or more rollers of polishing article.

53. (New) The apparatus of claim 39, wherein the one or more rollers of polishing article are disposed in series to polish a horizontally or vertically disposed substrate.

54. (New) The apparatus of claim 39, wherein the polishing article is conductive.

55. (New) The apparatus of claim 54, wherein the conductive polishing article comprises conductive elements or materials embedded or formed in polyurethane, wherein the conductive elements are electrically connected to one another and contact a substrate surface when a substrate is in contact with the polishing article.